

December 22, 2005

Ms. Joan Fleck  
North Coast Regional Water Quality Control Board  
5550 Skylane Boulevard, Suite A  
Santa Rosa, CA 95403

**Re: Special Groundwater Sampling Report, Former Mead Clark Lumber Company, Third and Railroad Streets, Santa Rosa, California, NCRWQCB Case No. 1TSR016**

Dear Ms. Fleck:

On behalf of our client, the Mead Clark Lumber Company (Mead Clark), Winzler & Kelly Consulting Engineers (Winzler & Kelly) is presenting the results of the special groundwater sampling activities performed on May 11 and 20, 2005, at the Former Mead Clark Lumber Company located at Third and Railroad Streets, Santa Rosa, California (Figures 1 and 2). The special groundwater sampling was performed to characterize contaminants and determine responsibility of contaminants as mentioned in the March 29, 2005 letter (Appendix A) from the North Coast Regional Water Quality Control Board (NCRWQCB).

#### **SPECIAL GROUNDWATER SAMPLING ACTIVITIES**

The Site-Specific Sampling Procedures, provided in Appendix B, describe in detail all of the sampling activities that were performed at the site on May 11 and 20, 2005. A brief summary of these activities are also provided below.

#### **FIELD ACTIVITIES**

- Personnel Present:*** Blaine Tech Services (contracted by Winzler & Kelly) measured groundwater levels, and developed and purged the groundwater monitoring wells to be sampled. Winzler & Kelly and Kennedy/Jenks Consultants personnel collected the groundwater samples.
- Depth-to-Groundwater:*** An electronic water level meter was used to measure the depth-to-groundwater in each monitoring well after allowing the groundwater in each well to equilibrate to atmospheric pressure for a minimum of 20 minutes.
- Well Development:*** On May 11, 2005, monitoring wells MW-1 and monitoring wells GW-22, GW- 26A, GW-29, and GW-35 were redeveloped by Blaine Tech Services under the direction of Kennedy/Jenks Consultants and Winzler & Kelly. These wells were redeveloped because they had not been sampled within the past year. Well development data sheets are provided in Appendix C.

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**Purging:** Prior to sampling, each monitoring well was purged a minimum of three well-casing volumes or until the wells dewatered. As mentioned in the NCRWQCB letter, monitoring well GW-29 is screened across two permeable water bearing zones (Aquifer A and B). Therefore, GW-29 was purged at 25 feet at a slow flow speed so that only Aquifer A was purged.

**Groundwater Sampling:** On May 20, 2005, Winzler & Kelly and Kennedy/Jenks Consultants personnel used new disposable bailers to collect and transfer all groundwater samples from monitoring wells into the appropriate laboratory-supplied, certified clean sample containers.

**Chemical Analysis:** Analytical Sciences Laboratory (Analytical Sciences) of Petaluma, California (a California-certified laboratory) picked up groundwater samples at the site and analyzed the groundwater samples collected from each monitoring well for total petroleum hydrocarbons as gasoline (TPH-G), as diesel (TPH-D), and as motor oil (TPH-MO) by EPA Method 8015M with silica gel cleanup, and for volatile hydrocarbons by EPA Method 8260B (full list).

#### **SPECIAL GROUNDWATER SAMPLING RESULTS**

Prior to sampling, depth-to-groundwater was measured in each well. The groundwater elevation data is presented in Table 1. Historical groundwater data from the monitoring and sampling events conducted by Winzler & Kelly since 2001 has indicated a south-south east primary flow direction with an occasion south-southwestern.

During purging activities, the parameters of pH, conductivity, temperature, turbidity, and oxidation-reduction potential (ORP) were monitored in the groundwater extracted from the wells. A summary of these indicator parameters is provided in Table 2.

Laboratory analysis of groundwater samples collected from monitoring wells GW-22, GW-26A, and GW-35 did not quantify any constituents of concern (COCs) above the laboratory's reportable detection limits. COCs were quantified in groundwater samples collected from monitoring wells MW-1 (RWQCB monitoring well) and GW-29 at concentrations of 3,700 and 110 µg/L, respectively. The analytical laboratory quantified the reported TPH diesel concentrations from RWQCB well MW-1 as "*The sample chromatogram does not exhibit a chromatographic pattern of diesel. Higher boiling points of weathered gasoline are present*". The laboratory also communicated that the reported TPH gasoline concentration was also clearly weathered gasoline. No methyl tert-butyl ether (MTBE) was identified in the samples collected during this event. A comprehensive summary of the analytical results of groundwater sampling is provided in Table 3. Figure 3 depicts the concentrations of TPH-G, benzene, and MTBE that were detected in the groundwater samples collected on May 20, 2005.

The laboratory QA/QC included the use of method blanks to exclude false-positive analyses and the use of laboratory control samples to evaluate the percentage recovery of known analyte spikes. The recovery

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percentages for all of the sample analytes were within the laboratory's acceptance ranges. The complete laboratory report, QA/QC data, and the chain-of-custody form are included in Appendix D.

#### **GEOTracker DATA ENTRY**

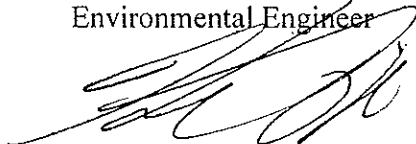
As required by Assembly Bill AB2886, Winzler & Kelly has submitted the May 20, 2005 groundwater well measurement file to the GeoTracker database. An upload verification form is provided in Appendix E. Winzler & Kelly will submit the analytical data for the May 20, 2005 event upon receipt of the EDF report from Analytical Sciences as well as this report.

If you have any questions or comments regarding this project, please contact David J. Vossler, Project Manager, at (707) 523-1010.

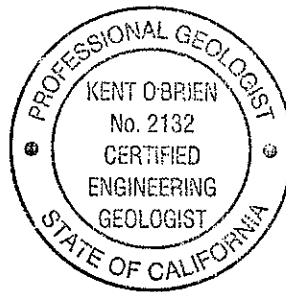
Sincerely,  
WINZLER & KELLY



Pon Xayasaeng  
Environmental Engineer



Kent O'Brien, PG, CEG  
Senior Project Geologist



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Attachments

Figures:

- Figure 1 – Location Map
- Figure 2 – Site Map
- Figure 3 – Petroleum Hydrocarbon Concentrations in Groundwater

Tables:

- Table 1 – Water Level Data and Well Construction Details
- Table 2 – Field Indicator Parameters
- Table 3 – Groundwater Sample Analyses Results

Appendices:

- Appendix A – Agency Correspondence
- Appendix B – Site-Specific Field Procedures
- Appendix C – Well Development Data Sheets
- Appendix D – Analytical Laboratory Report
- Appendix E – GeoTracker Upload Verification



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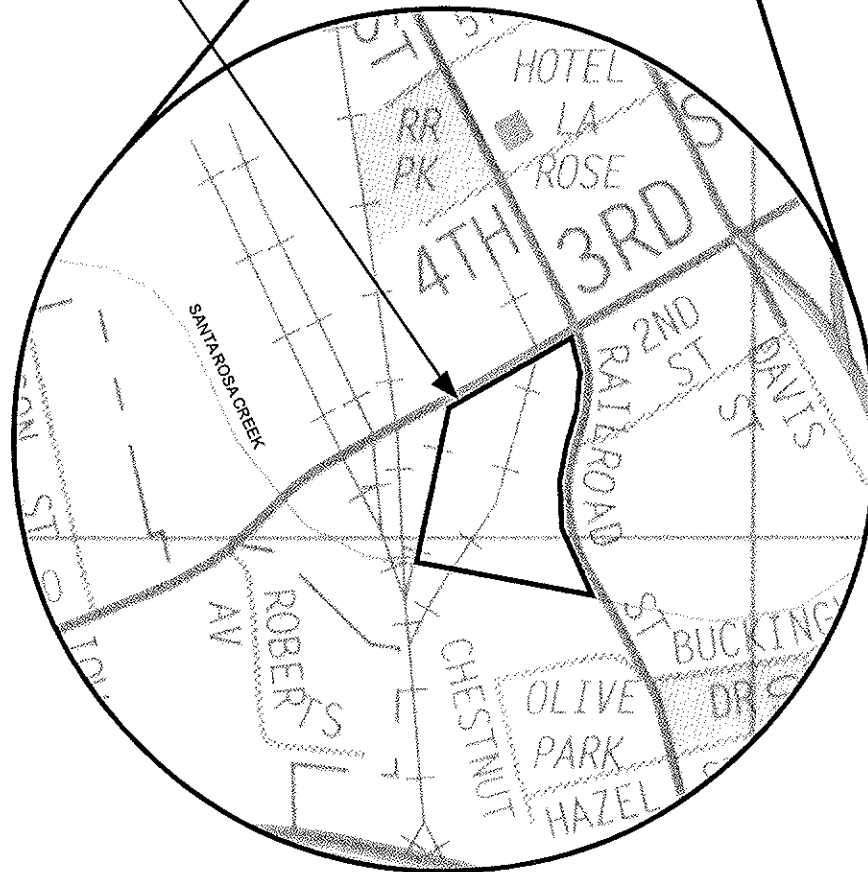
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- c: Mr. Kevin Destruel, Mead Clark Lumber Company, P.O Box 529, Santa Rosa, CA 95402  
Mr. John F. DeMeo, Law Offices of DeMeo, & DeMeo, 565 West College Avenue, Santa Rosa  
CA 95401  
Ms. Laura Kennedy, Kennedy Jenks, 622 Folsom Street, San Francisco, CA 94107



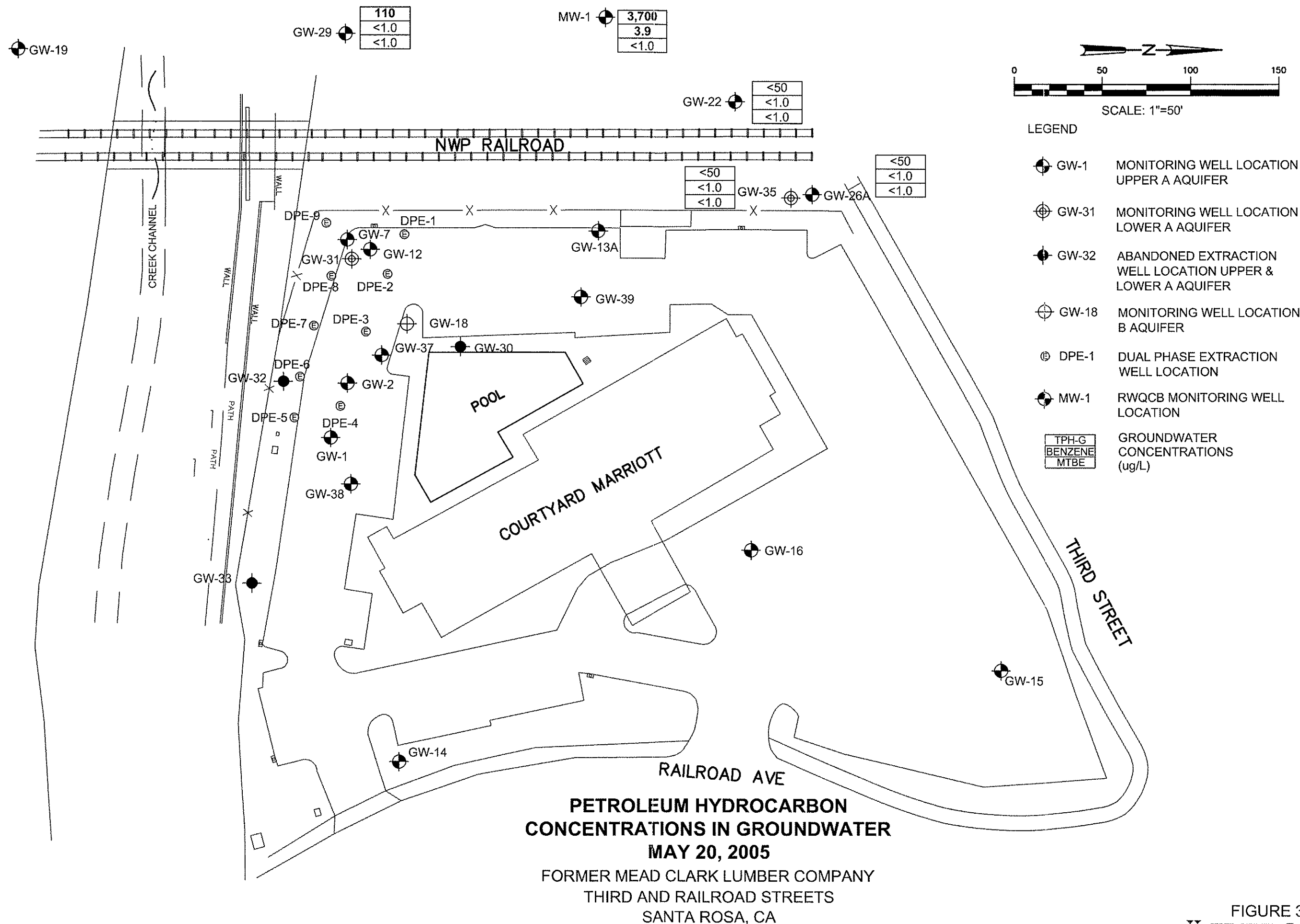
SITE LOCATION

SONOMA COUNTY

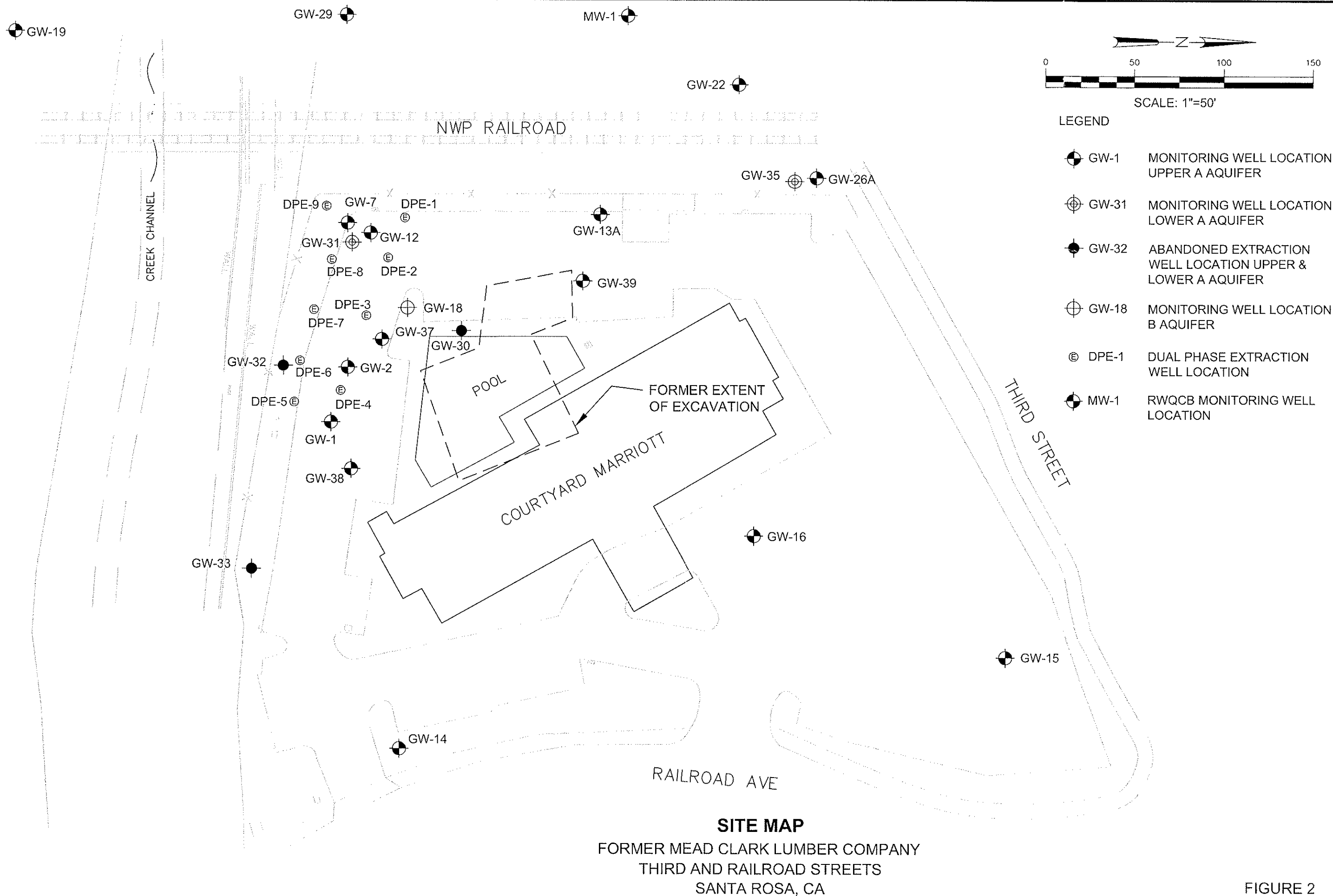


LOCATION MAP  
FORMER MEAD CLARK LUMBER COMPANY  
THIRD & RAILROAD STREETS  
SANTA ROSA, CA

FIGURE 1



J:\03\242501\CAD\Site Map.dwg Aug 15, 2005 - 8:37am







**Table 1. Water Level Data and Well Construction Details**

Former Mead Clark Lumber Company

Third and Railroad Streets

Santa Rosa, California

Well ID	Date	Groundwater Elevation	Depth-to-Water	Top of Casing Elevation (Mean Sea Level)	Free Product Thickness	Screen Interval	Sand Pack Interval	Bentonite/ Grout Interval
					feet			
MW-1	5/20/2005	---	24.21	---	NM	---	---	---
GW-22	5/20/2005	---	18.61	---	NM	9.5-20.0	6.0-24.0	0.0-6.0
GW-26A Upper-A	7/25/2001	NM	NM	154.27	NM	10.0-30.0	9.0-31.0	0.0-9.0
	10/29/2001	136.70	17.57		NM			
	1/30/2002 - 5/28/2004	NM	NM		NM			
	5/20/2005	139.10	15.17		NM			
GW-29	5/20/2005	---	18.86	---	NM	7.0-40.5	6.0-41.5	0.0-6.0
GW-35	5/20/2005	---	15.47	---	NM	39.2-49.2	37.0-52.0	0.0-37.0

**Notes:**

NM = Not Measured

--- = Well not surveyed

Top of Casing Elevations Surveyed by Winzler & Kelly on September 24, 2001. Elevations based on National Geodetic Survey Bench Mark U 106, located at the Santa Rosa Northwestern Pacific Railroad Station, with an elevation of 157.30 (NGVD 29) above mean sea level.

**Table 2. Field Indicator Parameters**  
Former Mead Clark Lumber Company  
Third and Railroad Streets, Santa Rosa, California

Well ID	Sample Date	pH	Conductivity (uS/cm)	Turbidity (NTU)	Temperature (°F)	ORP (mV)
MW-1	5/20/2005	6.8	435	241	66.8	98
GW-22	5/20/2005	6.8	623	160	68.5	108
GW-26A	5/20/2005	6.6	660	9	67.0	194
GW-29	5/20/2005	6.6	444	2	67.6	76
GW-35	5/20/2005	7.1	631	1	69.0	111

**Notes:**

uS/cm = microSiemens per centimeter

NTU = nephelometric turbidity units

°F = degrees Fahrenheit

mV = millivolts

**Table 3. Groundwater Sample Analyses Results**  
Former Mead Clark Lumber Company  
Third and Railroad Streets, Santa Rosa, California

Well ID	Date Sampled	Analytic Methods	TPH-G	TPH-D	TPH-MO	TPH-K	B	T	E	X	MTBE	Other Volatile Hydrocarbons	EDC or 1,2-DCA
ug/L													
MW-1	5/20/2005	5030/8015M/8260B	3,700	1,000 <sup>1,2</sup>	<200 <sup>2</sup>	NA	3.9	<1.0	4.8	<1.0	<1.0	isopropyl benzene=39, n-propyl benzene=110, tert-butylbenzene=2.8, sec-butylbenzene=15, p-isopropyltoluene=2.8, n-butylbenzene = 24, naphthalene=3.7, All others <1.0, TBA <25	<1.0
	4/5/1988		3,400	NA		<250	315	27	90	230	NA	NA	<0.5
	7/1/1988		310	NA		<50	<0.5	1.7	<0.5	1.0	NA	NA	NA
	10/12/1988		<50	NA		<50	<0.5	<0.5	<0.5	1.3	NA	NA	NA
	1/1/1989		<50	NA		NA	<0.5	<0.5	<0.5	<0.5	NA	NA	NA
	4/1/1989		420	NA		NA	45	2.1	<1.5	3.8	NA	NA	NA
GW-22	7/19/1989		360	NA		NA	6.0	<0.5	<0.5	<0.5	NA	NA	NA
	5/20/2005	5030/8015M/8260B	<50	<50	<200 <sup>2</sup>	NA	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0, TBA <25	<1.0
	5/5/1988		6,600	NA		<500	1,800	50	6.0	510	NA	NA	1.3
	7/1/1988		3,000	NA		<2,000	1,000	21	<2.0	90	NA	NA	NA
	10/11/1988		4,900	NA		<1,250	2,200	<0.5	320	260	NA	NA	NA
	1/1/1989		2,100	NA		NA	2.5	2.6	6.7	19	NA	NA	NA
GW-26A	4/12/1989		700	NA		NA	8.3	<1.0	<1.0	22	NA	NA	NA
	7/19/1989		4,900	NA		NA	140	4.0	190	79	NA	NA	NA
	5/20/2005	5030/8015M/8260B	<50	<50	<200 <sup>2</sup>	NA	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0, TBA <25	<1.0
	4/25/1988		4,840	NA		<250	120	12.5	39.5	67	NA	NA	<1.0
	6/30/1988		NA	NA		NA	2.0	<0.5	<0.5	4.7	NA	NA	0.9
	7/5/1988		770	NA		<50	NA	NA	NA	NA	NA	NA	NA
GW-29	10/12/1988		1,400	NA		<500	75	4.0	5.6	14	NA	NA	NA
	1/1/1989		2,400	NA		NA	7.5	72	<0.5	12	NA	NA	NA
	4/1/1989		<50	NA		NA	<0.5	<0.5	<1.5	<1.5	NA	NA	NA
	7/19/1989		1,700	NA		NA	33	<0.5	3.4	2.2	NA	NA	NA
	5/20/2005	5030/8015M/8260B	110	<50	<200 <sup>2</sup>	NA	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0, TBA <25	<1.0
	7/22/1988		<50	NA		<50	<0.5	<0.5	<0.5	<0.5	NA	NA	<0.5
GW-35	10/11/1988		54	NA		<50	3.0	1.0	1.5	5.8	NA	NA	<0.5
	1/1/1989		<50	NA		NA	<0.5	<0.5	<0.5	<0.5	NA	NA	NA
	4/1/1989		<50	NA		NA	<0.5	<0.5	<1.5	<1.5	NA	NA	NA
	7/19/1989		<100	NA		NA	<0.5	<0.5	<0.5	<0.5	NA	NA	NA
	5/20/2005	5030/8015M/8260B	<50	<50	<200 <sup>2</sup>	NA	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0, TBA <25	<1.0

**ABBREVIATIONS:**

NA = Not analyzed  
 TPH-G = Total petroleum hydrocarbons as gasoline  
 TPH-D = Total petroleum hydrocarbons as diesel  
 TPH-MO = Total petroleum hydrocarbons as motor oil  
 TPH-K = Total petroleum hydrocarbons as diesel  
 B = Benzene  
 T = Toluene  
 E = Ethyl benzene  
 X = Total xylenes  
 MTBE = Methyl tert-butyl ether  
 EDC or 1,2-DCA = 1,2-Dichloroethane

**NOTES:**

<sup>1, 2</sup> The sample does not exhibit a chromatographic pattern characteristic of diesel. Higher boiling point constituents of weathered gasoline are present.  
<sup>2</sup> = Silica gel cleanup was utilized for this sample prior to analysis

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## **Appendix A**

### **Agency Correspondence**



**California Regional Water Quality Control Board**  
**North Coast Region**  
**Beverly Wasson, Chairman**



**Arnold  
Schwarzenegger**  
*Governor*

**Alan C. Lloyd, Ph.D.**  
*Agency Secretary*

<http://www.waterboards.ca.gov/northcoast>  
5550 Skylane Boulevard, Suite A, Santa Rosa, California 95403  
Phone: 1 (877) 721-9203 (toll free) • Office: (707) 576-2220 • FAX: (707) 523-0135

March 29, 2005

Mr. Kevin Destruel  
Mead Clark Lumber Company  
P.O. Box 529  
Santa Rosa, CA 95402

Mr. Mike Grant  
Manager, Environmental Site Remediation  
Union Pacific Railroad  
49 Stevenson Street, 15<sup>th</sup> Floor  
San Francisco, CA 94105

Gentlemen:

**Subject:** Groundwater Monitoring Wells Sampling & Abandonment

**File:** Mead Clark Lumber Company, Third Street, Santa Rosa, Case No. 1TSR016  
Southern Pacific Transportation Company, Third Street Property, Santa Rosa, Case No. 1TSR196

In February 2005, Ms. Norma Jellison contacted me regarding the groundwater monitoring wells installed on railroad property on behalf of the Mead Clark Lumber Company. The wells in question include GW-24 and GW-27 located north of Third Street. The interest in GW-24 and GW-27 relates to a potential change in property title and ownership of the wells.

Wells GW-24 and GW-27 may be properly abandoned because they are no longer needed for the Mead Clark Lumber Company investigation. Prior to abandonment, the wells must be sampled and tested for total petroleum hydrocarbons as gasoline (TPHg), diesel (TPHd), motor oil and the full EPA Method 8260 scan. I have relayed this information to Mr. Brian Wingard of Winzler & Kelly, consultant to the Mead Clark Lumber Company with instructions to proceed with the work.

A separate but related issue is the wells located south of Third Street also installed on behalf of the Mead Clark Lumber Company. These wells must also be sampled. An unresolved issue remains in this area regarding contaminant characterization and responsibility. Total petroleum hydrocarbons as diesel were reported in groundwater in the vicinity of the former railroad underground storage tanks at 14,000 and 6,500 ug/l during the Industrial Compliance phase of work in 1992. Total petroleum hydrocarbons as diesel were not reported during a later phase of work completed by Geomatrix. Total petroleum hydrocarbons as gasoline were detected.

On March 13, 1998, Regional Water Board staff concurred with the Union Pacific proposal to conduct a coordinated sampling event with the consultant for the Mead Clark investigation to

***California Environmental Protection Agency***

resolve this matter. However, the joint sampling event was not conducted and the issue of diesel verses gasoline has not and must be resolved.

Please take the necessary steps to conduct the coordinated sampling event. Splits samples must be collected from wells GW-26A, GW-35, GW-22 and GW-29 and analyzed by different analytical laboratories. Well GW-29 was installed as an extraction well and is screened across two permeable water-bearing zones. Therefore, standard purge methods may not be appropriate for this well for characterization of the shallow water-bearing zone. In addition, MW-1, installed by North Coast Regional Water Quality Control Board (MW-1) should also be sampled.

The analytical report is due within 60 days of issuance of this letter. Please contact me in advance of the scheduled sampling event so I can conduct a site inspection during field activities and provide you with the key to MW-1.

If you have any questions please call me at (707) 576-2675.

Sincerely,



Joan Fleck  
Engineering Geologist

032905\_JEF\_Meadclarkwells

Cc: Fire Inspector Andrea Jensen, Santa Rosa Fire Department  
Ms. Laura Kennedy, Kennedy/Jenks, 622 Folsom Street, San Francisco, CA  
94107  
Ms. Norma Jellison, Golden Gate Bridge Highway & Transportation District,  
1011 Anderson Drive, San Rafael, CA 94901-5381  
Mr. Brian Wingard, Winzler & Kelly, 495 Tesconi Circle, Santa Rosa, CA 95401-  
4696

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## **Appendix B**

### **Site-Specific Field Procedures**



## WINZLER & KELLY CONSULTING ENGINEERS

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### Site-Specific Monitoring Well Development Procedures Former Mead Clark Lumber Company Third and Railroad Streets, Santa Rosa, California May 11, 2005

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#### 1. Objective

Properly develop monitoring wells prior to sampling.

#### 2. Background

Monitoring wells MW-1, GW-22, GW-26A, GW-29, and GW-35 were redeveloped by Blaine Tech Services because they have not been sampled within the past year.

#### 3. Personnel Required and Responsibilities

Blaine Tech Services Field Technician: The technician performed well development activities in accordance with the procedures outlined below.

Kennedy/Jenks Consultant Registered Geologist: The geologist ensured that the monitoring wells were properly developed and in accordance with the procedures outlined below.

#### 4. Procedures

- Usingalconox soap and potable water, all equipment and instruments to enter the wells were cleaned and then rinsed upon arriving at the site.
- All monitoring wells were opened and allowed to equilibrate for a minimum of 15 minutes.
- The volume of standing water in each monitoring well was calculated and recorded on the well development data sheets.
- Alternate surging/swabbing of the screened interval and purging of the water was performed as follows:
  - Surging/Swabbing: A 4-inch surge block was used to swab the screened portion of the well. The surge block was lowered to the bottom of the well and rapidly raised and lowered in 2-foot intervals in a plunger-like fashion. The surge/swab was repeated 15-20 times at each 2-foot interval.
  - Purging: Following each round of surging of the screened interval, the wells were purged of water using a 1.75-inch purge pump. The purge pump was lowered to the bottom of the wells in order to “grab” the silts and clays that had settled.

- In wells with little water or with very poor recharge, potable water was added to the well to ensure adequate development. The volume of water added was documented on data sheets.
- The process was continued until turbidity concentrations were less than 100 NTUs.
- All purge water was transferred to a 2,000-gallon tank secured on site.
- Decontamination of all non-disposable equipment was performed after completion of field work.

## **5. Equipment Required**

- Tool Box
- Disposable Gloves
- Decontamination Supplies
- Water Level Meter
- Measuring Tape
- Indelible marker/Drum Labels
- Surge Block
- PVC Extensions
- Development Pump
- Bailers and Line
- Several 5-gallon buckets
- Well Development Forms

# WINZLER & KELLY CONSULTING ENGINEERS

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## Site-Specific Groundwater Sampling Procedures Former Mead Clark Lumber Site Third and Railroad Streets, Santa Rosa, California May 20, 2005

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### 1. Objective

Collect representative water level data and groundwater samples.

### 2. Background

Water levels were measured to determine the groundwater flow gradient and flow direction. Representative groundwater samples from the water-bearing zone were obtained using disposable polyethylene bailers after purging.

### 3. Personnel Required and Responsibilities

Blaine Tech Services Field Technician: The technician performed water level measurements and purging activities in accordance with the procedures outlined below.

Winzler & Kelly Technician: The technician collected groundwater samples in accordance with the procedures outlined below.

### 4. Procedures

#### 4a. Decontamination Procedures

- The water level meter and pumps were decontaminated using a steam cleaner upon arriving at the site. The oil/water interface meter was decontaminated using Alconox soap and potable water.
- The meters and pumps were decontaminated following use in each well.
- Nitrile gloves were worn by the technicians when handling equipment and instruments and changed after each use.

#### 4b. Groundwater Elevations

- Each monitoring well was opened and the expandable caps were removed.
- Each well was allowed to equilibrate to atmospheric pressure for a minimum of 20 minutes.
- A water level meter was used to measure the depth-to-groundwater in groundwater monitoring wells.
- The depth, time, and visual observations regarding well access, condition, security, etc., were recorded on the water level data sheet.

#### **4c. Purging**

- The meters used to measure indicator parameters were calibrated prior to sampling.
- The volume of standing water in each monitoring well was calculated using the measured depth-to-water and historic depth-to-bottom. The volume was recorded on the Well Sampling Data Sheet for each well.
- Each well sampled was purged of three well volumes using a down-hole 3-inch electric submersible pump attached to plastic tubing, unless the well dewatered before such a volume was purged.
- Conductivity, pH, turbidity, and temperature were monitored at each well casing interval throughout the purging process.
- The time, readings, and visual comments were recorded on the Well Sampling Data Sheet.
- Purge water was transferred to a 2,000-gallon tank stored and secured on site.

#### **4d. Groundwater Sample Collection**

- Groundwater samples were collected by lowering previously unused, disposable, polyethylene, bottom-filling bailers into the well after the water level had recharged to at least 80 percent.
- When completely full, the bailer was carefully retracted from the well casing.
- The groundwater from each well sampled was transferred from the bailer into the appropriate sampling containers.
- Upon filling, each vial was immediately capped. The vial was checked for air bubbles by inverting and gently tapping the vial. If any bubbles were visible, the vial was refilled and confirmed to be free of any air bubbles.
- All samples were labeled with the following information:

Sample ID	Date and Time Sample Collected
Location	Sampler's Initials
Project Number	
- Sample information was documented on a chain-of-custody form.
- All samples were placed in an ice chest, chilled with ice.
- Upon completion of the sampling activities, each well was closed and secured by replacing the well cap and securing the lock.

#### **5. Equipment Used:**

- Disposable gloves
- Potable water
- Alconox soap
- Scrub brushes
- Tools to open wells
- Keys to wells
- Water Level Data Form
- Well Sampling Data Sheet
- Chain-of-Custody Form
- Water level meter
- Oil / Water Interface Meter
- 3-inch electric submersible pump

- 1.75-inch positive displacement pump
- Ultrameter 6P
- Turbidity Meter
- Disposable bailers (previously unused)
- Monofilament nylon line (50-lb test)
- Scissors
- Sample containers (preserved, as required) - provided by the laboratory
- Sample labels
- Ice chest
- Ice
- Labels / Indelible marker
- Trash bags
- 2,000-gallon storage tank
- Ziploc bags
- Nitrile Gloves

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## **Appendix C**

### **Well Development Data Sheets**

## WELL GAUGING DATA

Project # 050511-BM1 Date 5/11/05 Client Winkler & Kelly

Site 175 RRR Rd. Santa Rosa

[illegible]

## WELL DEVELOPMENT DATA SHEET

Project #:	080511-BMI	Client:	Winkler + Kelly
Developer:	BMI	Date Developed:	5/11/05
Well I.D.	MW-1	Well Diameter: (circle one)	2 3 4 6
Total Well Depth:		Depth to Water:	
Before	29.77	After	29.78
Before	13.78	After	21.83
Reason not developed:		If Free Product, thickness:	
Additional Notations: Sampled well 10 mins			

$$(12 \times (d^2/4) \times \pi) / 231$$

12 = in / foot

d = diameter (in.)

$$\pi = 3.1416$$

231 = in 3/931

231 = in 3/931

YCF

$$2^u = 0.16$$
$$3'' \approx 0.37$$
$$q'' = 0.65$$
$$G'' = 1.47$$
$$10'' = 4.08$$

12"	$\approx$	6.87
-----	-----------	------

$$\frac{8}{1 \text{ Case Volume}} \times \frac{10}{\text{Specified Volumes}} = \frac{80}{\text{gallons}}$$

Purging Device:      Bailer            ☐            Electric Submersible            ☐  
                                  Middleburg   ☒            Suction Pump            ☐

Type of Installed Pump

Other equipment used *Surge block*

[illegible]



# WELL DEVELOPMENT DATA SHEET

Project #: <u>080511-Bull</u>	Client: <u>Winkler &amp; Kelly</u>
Developer: <u>BM</u>	Date Developed: <u>5/11/05</u>
Well I.D. <u>GW-22</u>	Well Diameter: (circle one) 2 3 <u>(4)</u> 6
Total Well Depth:	Depth to Water:
Before <u>29.12</u> After <u>29.12</u>	Before <u>12.88</u> After <u>24.97</u>
Reason not developed:	If Free Product, thickness:
Additional Notations: <u>Surged well 10 mins</u>	

Volume Conversion Factor (VCF):

$(12 \times (d^2/4) \times \pi) / 231$

where

12 = in / foot

d = diameter (in.)

$\pi = 3.1416$

231 = in <sup>3</sup> / gal

Well dia.

VCF

2" = 0.16

3" = 0.37

4" = 0.65

6" = 1.47

10" = 4.08

12" = 6.87

<u>10.5</u>	X	<u>10</u>	=	<u>105</u>
1 Case Volume		Specified Volumes		gallons

Purging Device:      Bailer ☐      Electric Submersible ☐  
                          Middleburg ☒      Suction Pump ☐

Type of Installed Pump \_\_\_\_\_

Other equipment used Surge block

TIME	TEMP (F)	pH	Cond. (mS or $\mu$ S)	TURBIDITY (NTUs)	VOLUME REMOVED:	NOTATIONS:
1110	65.8	7.0	630	71000	10.5	Hard bottom, Turbid, silty
1121	66.4	6.6	627	278	21	DTW = 15.37
			Switch to E.S.			
1128	66.5	7.0	617	219	31.5	Hard bottom, clearing
1130	67.0	6.7	637	695	42	DTW = 24.95
1132	67.6	6.6	638	387	52.5	Clearing
1135	67.3	6.7	631	127	63	DTW = 24.97
			Well attempting to dewater but has good recovery rate.			
1140	67.1	6.7	629	40	73.5	clearing
			Well too rough for client to call redeveloped			
Did Well Dewater? <u>No</u>			If yes, note above.		Gallons Actually Evacuated:	<u>73.5</u>

## WELL DEVELOPMENT DATA SHEET

Project #: 050511-Bell	Client: Winkler + Kelly
Developer: Bell	Date Developed: 5/11/05
Well I.D. GW-260A	Well Diameter: (circle one) 2 3 (4) 6
Total Well Depth:	Depth to Water:
Before 30.12 After 30.20	Before 13.39 After 28.05
Reason not developed:	If Free Product, thickness:
Additional Notations: Surged well 10 mins	

Volume Conversion Factor (VCF):	Well dia.	VCF
$\{12 \times (d^2/4) \times \pi\} / 231$	2"	0.16
where	3"	0.37
12 = in / foot	4"	0.65
d = diameter (in.)	6"	1.47
$\pi = 3.1416$	10"	4.08
231 = in 3/gal	12"	6.87

$$\frac{10.9}{1 \text{ Case Volume}} \times \frac{10}{\text{Specified Volumes}} = \frac{109}{\text{gallons}}$$

Purging Device:      Bailer            ☐            Electric Submersible            ☐  
                                  Middleburg   ☒            Suction Pump            ☐

Type of Installed Pump \_\_\_\_\_

Other equipment used Serge Block

TIME	TEMP (F)	pH	Cond. (mS or $\mu$ S)	TURBIDITY (NTUs)	VOLUME REMOVED:	NOTATIONS:
849	64.2	6.2	670	7100	11	Hard bottom, Turbid, minor silt
901	64.0	6.7	649	194	22	DTW = 14.11
Switched to E.S.						
910	65.4	6.7	637	524	33	Hard bottom, clearing
912	66.2	6.6	656	278	44	DTW = 20.14
915	66.7	6.6	661	128	55	Hard bottom, clearing
917	66.8	6.7	659	232	66	DTW = 22.96
919	67.0	6.7	660	341	77	Hard bottom
922	66.9	6.8	664	800	88	DTW = 26.50
924	66.9	6.8	658	692	99	Hard bottom
926	66.8	6.8	658	96	109	DTW = 28.05
Well bottom clean + hard.						
Did Well Dewater? <i>NO</i>			If yes, note above.		Gallons Actually Evacuated: <i>109</i>	

# WELL DEVELOPMENT DATA SHEET

Project #: <u>Q50571-BM1</u>	Client: <u>Winkler + Kelly</u>
Developer: <u>BH</u>	Date Developed: <u>5/11/05</u>
Well I.D. <u>GW-29</u>	Well Diameter: (circle one) 2 3 <u>4</u> 6
Total Well Depth:	Depth to Water:
Before <u>46.25</u> After <u>47.60</u>	Before <u>16.50</u> After <u>24.87</u>
Reason not developed:	If Free Product, thickness:
Additional Notations: <u>Surged well 70 mins</u>	

Volume Conversion Factor (VCF):

$$\{12 \times (d^2/4) \times \pi\} / 231$$

where

12 = in / foot

d = diameter (in.)

$\pi = 3.1416$

231 = in <sup>3</sup> / gal

Well dia.

VCF

2" = 0.16

3" = 0.37

4" = 0.65

6" = 1.47

10" = 4.08

12" = 6.87

<u>19.3</u>	X	<u>10</u>	=	<u>193</u>
1 Case Volume		Specified Volumes		gallons

Purging Device:      Bailer ☐      Electric Submersible ☐  
                          Middleburg ☒      Suction Pump ☐

Type of Installed Pump \_\_\_\_\_

Other equipment used Surge block

TIME	TEMP (F)	pH	Cond. (mS or <u>SD</u> )	TURBIDITY (NTUs)	VOLUME REMOVED:	NOTATIONS:
1508	66.2	7.6	467	>1000	19.3	Hard bottom, Turbid, s. 10y
1522	65.2	6.6	489	317	39.6	DTW = 21.28 Switch to E.S.
1326	64.9	6.8	532	25	57.9	Hard bottom, clearing
NTU are low enough - client considers this well redeveloped						
Did Well Dewater? <u>NO</u>		If yes, note above.		Gallons Actually Evacuated: <u>58</u>		

## WELL DEVELOPMENT DATA SHEET

Project #: 052511-BULL	Client: Winkler & Kelly
Developer: BULL	Date Developed: 5/11/05
Well I.D. (71/2"-35	Well Diameter: (circle one) 2 3 (4) 6
Total Well Depth:	Depth to Water:
Before 48.34 After 46.77	Before 15.45 After 17.70
Reason not developed:	If Free Product, thickness:
Additional Notations: Surged well 10 mins	

Volume Conversion Factor (VCF):	Well dia.	VCF
$\{12 \times (d^2/4) \times \pi\} / 231$	2"	0.16
where	3"	0.37
12 = in / foot	4"	0.65
d = diameter (in.)	6"	1.47
$\pi = 3.1416$	10"	4.08
231 = in <sup>3</sup> /gal	12"	6.87

$$\frac{214}{1 \text{ Case Volume}} \times \frac{10}{\text{Specified Volumes}} = \frac{214}{\text{gallons}}$$

Purging Device:      Bailer            ☐            Electric Submersible            ☐  
                                  Middleburg   ☒            Suction Pump            ☐

Type of Installed Pump \_\_\_\_\_

Other equipment used Surgery block

[illegible]

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## **Appendix D**

# **Analytical Laboratory Report**



Report Date: June 8, 2005

Pon Xayasaeng  
Winzler & Kelly Consulting Engineers  
495 Tesconi Circle, Suite 9  
Santa Rosa, CA 95401-4696

## LABORATORY REPORT

Project Name: **Former Mead Clark Lumber 0242505001.3200**

Lab Project Number: **5052005**

This 16 page report of analytical data has been reviewed and approved for release.

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Mark A. Valentini, Ph.D.  
Laboratory Director



### TPH Gasoline in Water

Lab #	Sample ID	Analysis	Result (ug/L)	RDL (ug/L)
29877	GW-26A	TPH/Gasoline	ND	50

Date Sampled: 05/20/05	Date Analyzed: 05/20/05	QC Batch #: 5540
Date Received: 05/20/05	Method: EPA 5030/8015M	

Lab #	Sample ID	Analysis	Result (ug/L)	RDL (ug/L)
29878	GW-35	TPH/Gasoline	ND	50

Date Sampled: 05/20/05	Date Analyzed: 05/20/05	QC Batch #: 5540
Date Received: 05/20/05	Method: EPA 5030/8015M	

Lab #	Sample ID	Analysis	Result (ug/L)	RDL (ug/L)
29879	GW-22	TPH/Gasoline	ND	50

Date Sampled: 05/20/05	Date Analyzed: 05/20/05	QC Batch #: 5540
Date Received: 05/20/05	Method: EPA 5030/8015M	

Lab #	Sample ID	Analysis	Result (ug/L)	RDL (ug/L)
29880	MW-1	TPH/Gasoline	3,700	100

Date Sampled: 05/20/05	Date Analyzed: 05/20/05, 05/23/05	QC Batch #: 5540
Date Received: 05/20/05	Method: EPA 5030/8015M	

Lab #	Sample ID	Analysis	Result (ug/L)	RDL (ug/L)
29881	GW-29	TPH/Gasoline	110	50

Date Sampled: 05/20/05	Date Analyzed: 05/20/05, 05/23/05	QC Batch #: 5540
Date Received: 05/20/05	Method: EPA 5030/8015M	



### TPH Diesel & Motor Oil in Water

Lab #	Sample ID	Analysis	Result (ug/L)	RDL (ug/L)
29877	GW-26A	TPH/Diesel Motor Oil	ND ND	50 200

Date Sampled: 05/20/05	Date Extracted: 05/23/05	QC Batch #: 5544
Date Received: 05/20/05	Date Analyzed: 05/23/05	Method: EPA 3510/8015M/Silica Clean-up

Lab #	Sample ID	Analysis	Result (ug/L)	RDL (ug/L)
29878	GW-35	TPH/Diesel Motor Oil	ND ND	50 200

Date Sampled: 05/20/05	Date Extracted: 05/23/05	QC Batch #: 5544
Date Received: 05/20/05	Date Analyzed: 05/23/05	Method: EPA 3510/8015M/Silica Clean-up

Lab #	Sample ID	Analysis	Result (ug/L)	RDL (ug/L)
29879	GW-22	TPH/Diesel Motor Oil	ND ND	50 200

Date Sampled: 05/20/05	Date Extracted: 05/23/05	QC Batch #: 5544
Date Received: 05/20/05	Date Analyzed: 05/23/05	Method: EPA 3510/8015M/Silica Clean-up

Lab #	Sample ID	Analysis	Result (ug/L)	RDL (ug/L)
29880	MW-1	TPH/Diesel Motor Oil	1,000 (1) ND	50 200

Date Sampled: 05/20/05	Date Extracted: 05/23/05	QC Batch #: 5544
Date Received: 05/20/05	Date Analyzed: 05/23/05	Method: EPA 3510/8015M/Silica Clean-up

Lab #	Sample ID	Analysis	Result (ug/L)	RDL (ug/L)
29881	GW-29	TPH/Diesel Motor Oil	ND ND	50 200

Date Sampled: 05/20/05	Date Extracted: 05/23/05	QC Batch #: 5544
Date Received: 05/20/05	Date Analyzed: 05/23/05	Method: EPA 3510/8015M/Silica Clean-up

(1) The sample chromatogram does not exhibit a chromatographic pattern characteristic of diesel. Higher boiling components of weathered gasoline are present.





### Volatile Hydrocarbons by GC/MS in Water

Lab #	Sample ID	Compound Name	Result (ug/L)	RDL (ug/L)
29877	GW-26A	dichlorodifluoromethane	ND	1.0
		chloromethane	ND	1.0
		vinyl chloride	ND	1.0
		chloroethane	ND	1.0
		bromomethane	ND	1.0
		trichlorofluoromethane	ND	1.0
		1,1-dichloroethene (1,1-DCE)	ND	1.0
		methylene chloride	ND	1.0
		trans-1,2-dichloroethene (trans-1,2-DCE)	ND	1.0
		1,1-dichloroethane (1,1-DCA)	ND	1.0
		cis-1,2-dichloroethene (cis-1,2-DCE)	ND	1.0
		2,2-dichloropropane	ND	1.0
		chloroform (THM1)	ND	1.0
		bromochloromethane	ND	1.0
		1,1,1-trichloroethane (TCA)	ND	1.0
		1,2-dichloroethane (EDC)	ND	1.0
		1,1-dichloropropene	ND	1.0
		carbon tetrachloride	ND	1.0
		benzene	ND	1.0
		trichloroethene (TCE)	ND	1.0
		1,2-dichloropropane (DCP)	ND	1.0
		dibromomethane	ND	1.0
		bromodichloromethane (THM2)	ND	1.0
		cis-1,3-dichloropropene	ND	1.0
		toluene	ND	1.0
		1,1,2-trichloroethane	ND	1.0
		1,3-dichloropropane	ND	1.0
		dibromochloromethane (THM3)	ND	1.0
		tetrachloroethene (PCE)	ND	1.0
		1,2-dibromoethane (EDB)	ND	1.0
		chlorobenzene	ND	1.0
		1,1,1,2-tetrachloroethane	ND	1.0
		ethyl benzene	ND	1.0
		m,p-xylene	ND	1.0
		styrene	ND	1.0
		o-xylene	ND	1.0
		bromoform (THM4)	ND	1.0
		1,1,2,2-tetrachloroethane	ND	1.0



Lab #	Sample ID	Compound Name	Result (ug/L)	RDL (ug/L)
29877	GW-26A	isopropyl benzene	ND	1.0
		1,2,3-trichloropropane	ND	1.0
		bromobenzene	ND	1.0
		n-propyl benzene	ND	1.0
		2-chlorotoluene	ND	1.0
		4-chlorotoluene	ND	1.0
		1,3,5-trimethylbenzene	ND	1.0
		tert-butylbenzene	ND	1.0
		1,2,4-trimethylbenzene	ND	1.0
		sec-butylbenzene	ND	1.0
		1,3-dichlorobenzene	ND	1.0
		1,4-dichlorobenzene	ND	1.0
		1,2-dichlorobenzene	ND	1.0
		p-isopropyltoluene	ND	1.0
		n-butylbenzene	ND	1.0
		1,2,4-trichlorobenzene	ND	1.0
		naphthalene	ND	1.0
		hexachlorobutadiene	ND	1.0
		1,2,3-trichlorobenzene	ND	1.0

#### Oxygenated Gasoline Additives

tert-butyl alcohol (TBA)	ND	25
methyl tert-butyl ether (MTBE)	ND	1.0
di-isopropyl ether (DIPE)	ND	1.0
ethyl tert-butyl ether (ETBE)	ND	1.0
tert-amyl methyl ether (TAME)	ND	1.0

Surrogates	Result (ug/L)	% Recovery	Acceptance Range (%)
dibromofluoromethane (20)	20.7	104	70 – 130
toluene-d <sub>8</sub> (20)	20.1	101	70 – 130
4-bromofluorobenzene (20)	19.0	95.0	70 – 130

Date Sampled: 05/20/05  
Date Received: 05/20/05

Date Analyzed: 05/24/05  
Method: EPA 8260B

QC Batch #: 5542



Lab #	Sample ID	Compound Name	Result (ug/L)	RDL (ug/L)
29878	GW-35	dichlorodifluoromethane	ND	1.0
		chloromethane	ND	1.0
		vinyl chloride	ND	1.0
		chloroethane	ND	1.0
		bromomethane	ND	1.0
		trichlorofluoromethane	ND	1.0
		1,1-dichloroethene (1,1-DCE)	ND	1.0
		methylene chloride	ND	1.0
		trans-1,2-dichloroethene (trans-1,2-DCE)	ND	1.0
		1,1-dichloroethane (1,1-DCA)	ND	1.0
		cis-1,2-dichloroethene (cis-1,2-DCE)	ND	1.0
		2,2-dichloropropane	ND	1.0
		chloroform (THM1)	ND	1.0
		bromochloromethane	ND	1.0
		1,1,1-trichloroethane (TCA)	ND	1.0
		1,2-dichloroethane (EDC)	ND	1.0
		1,1-dichloropropene	ND	1.0
		carbon tetrachloride	ND	1.0
		benzene	ND	1.0
		trichloroethene (TCE)	ND	1.0
		1,2-dichloropropane (DCP)	ND	1.0
		dibromomethane	ND	1.0
		bromodichloromethane (THM2)	ND	1.0
		cis-1,3-dichloropropene	ND	1.0
		toluene	ND	1.0
		1,1,2-trichloroethane	ND	1.0
		1,3-dichloropropane	ND	1.0
		dibromochloromethane (THM3)	ND	1.0
		tetrachloroethene (PCE)	ND	1.0
		1,2-dibromoethane (EDB)	ND	1.0
		chlorobenzene	ND	1.0
		1,1,1,2-tetrachloroethane	ND	1.0
		ethyl benzene	ND	1.0
		m,p-xylene	ND	1.0
		styrene	ND	1.0
		o-xylene	ND	1.0
		bromoform (THM4)	ND	1.0
		1,1,2,2-tetrachloroethane	ND	1.0



Lab #	Sample ID	Compound Name	Result (ug/L)	RDL (ug/L)
29878	GW-35	isopropyl benzene	ND	1.0
		1,2,3-trichloropropane	ND	1.0
		bromobenzene	ND	1.0
		n-propyl benzene	ND	1.0
		2-chlorotoluene	ND	1.0
		4-chlorotoluene	ND	1.0
		1,3,5-trimethylbenzene	ND	1.0
		tert-butylbenzene	ND	1.0
		1,2,4-trimethylbenzene	ND	1.0
		sec-butylbenzene	ND	1.0
		1,3-dichlorobenzene	ND	1.0
		1,4-dichlorobenzene	ND	1.0
		1,2-dichlorobenzene	ND	1.0
		p-isopropyltoluene	ND	1.0
		n-butylbenzene	ND	1.0
		1,2,4-trichlorobenzene	ND	1.0
		naphthalene	ND	1.0
		hexachlorobutadiene	ND	1.0
		1,2,3-trichlorobenzene	ND	1.0

#### Oxygenated Gasoline Additives

tert-butyl alcohol (TBA)	ND	25
methyl tert-butyl ether (MTBE)	ND	1.0
di-isopropyl ether (DIPE)	ND	1.0
ethyl tert-butyl ether (ETBE)	ND	1.0
tert-amyl methyl ether (TAME)	ND	1.0

Surrogates	Result (ug/L)	% Recovery	Acceptance Range (%)
dibromofluoromethane (20)	20.4	102	70 – 130
toluene-d <sub>8</sub> (20)	20.0	100	70 – 130
4-bromofluorobenzene (20)	18.9	94.5	70 – 130

Date Sampled: 05/20/05  
Date Received: 05/20/05

Date Analyzed: 05/24/05  
Method: EPA 8260B

QC Batch #: 5542



Lab #	Sample ID	Compound Name	Result (ug/L)	RDL (ug/L)
29879	GW-22	dichlorodifluoromethane	ND	1.0
		chloromethane	ND	1.0
		vinyl chloride	ND	1.0
		chloroethane	ND	1.0
		bromomethane	ND	1.0
		trichlorofluoromethane	ND	1.0
		1,1-dichloroethene (1,1-DCE)	ND	1.0
		methylene chloride	ND	1.0
		trans-1,2-dichloroethene (trans-1,2-DCE)	ND	1.0
		1,1-dichloroethane (1,1-DCA)	ND	1.0
		cis-1,2-dichloroethene (cis-1,2-DCE)	ND	1.0
		2,2-dichloropropane	ND	1.0
		chloroform (THM1)	ND	1.0
		bromochloromethane	ND	1.0
		1,1,1-trichloroethane (TCA)	ND	1.0
		1,2-dichloroethane (EDC)	ND	1.0
		1,1-dichloropropene	ND	1.0
		carbon tetrachloride	ND	1.0
		benzene	ND	1.0
		trichloroethene (TCE)	ND	1.0
		1,2-dichloropropane (DCP)	ND	1.0
		dibromomethane	ND	1.0
		bromodichloromethane (THM2)	ND	1.0
		cis-1,3-dichloropropene	ND	1.0
		toluene	ND	1.0
		1,1,2-trichloroethane	ND	1.0
		1,3-dichloropropane	ND	1.0
		dibromochloromethane (THM3)	ND	1.0
		tetrachloroethene (PCE)	ND	1.0
		1,2-dibromoethane (EDB)	ND	1.0
		chlorobenzene	ND	1.0
		1,1,1,2-tetrachloroethane	ND	1.0
		ethyl benzene	ND	1.0
		m,p-xylene	ND	1.0
		styrene	ND	1.0
		o-xylene	ND	1.0
		bromoform (THM4)	ND	1.0
		1,1,2,2-tetrachloroethane	ND	1.0



Lab #	Sample ID	Compound Name	Result (ug/L)	RDL (ug/L)
29879	GW-22	isopropyl benzene	ND	1.0
		1,2,3-trichloropropane	ND	1.0
		bromobenzene	ND	1.0
		n-propyl benzene	ND	1.0
		2-chlorotoluene	ND	1.0
		4-chlorotoluene	ND	1.0
		1,3,5-trimethylbenzene	ND	1.0
		tert-butylbenzene	ND	1.0
		1,2,4-trimethylbenzene	ND	1.0
		sec-butylbenzene	ND	1.0
		1,3-dichlorobenzene	ND	1.0
		1,4-dichlorobenzene	ND	1.0
		1,2-dichlorobenzene	ND	1.0
		p-isopropyltoluene	ND	1.0
		n-butylbenzene	ND	1.0
		1,2,4-trichlorobenzene	ND	1.0
		naphthalene	ND	1.0
		hexachlorobutadiene	ND	1.0
		1,2,3-trichlorobenzene	ND	1.0

#### Oxygenated Gasoline Additives

tert-butyl alcohol (TBA)	ND	25
methyl tert-butyl ether (MTBE)	ND	1.0
di-isopropyl ether (DIPE)	ND	1.0
ethyl tert-butyl ether (ETBE)	ND	1.0
tert-amyl methyl ether (TAME)	ND	1.0

Surrogates	Result (ug/L)	% Recovery	Acceptance Range (%)
dibromofluoromethane (20)	20.7	104	70 – 130
toluene-d <sub>8</sub> (20)	19.8	99.0	70 – 130
4-bromofluorobenzene (20)	19.0	95.0	70 – 130

Date Sampled: 05/20/05  
Date Received: 05/20/05

Date Analyzed: 05/24/05  
Method: EPA 8260B

QC Batch #: 5542



Lab #	Sample ID	Compound Name	Result (ug/L)	RDL (ug/L)
29880	MW-1	dichlorodifluoromethane	ND	1.0
		chloromethane	ND	1.0
		vinyl chloride	ND	1.0
		chloroethane	ND	1.0
		bromomethane	ND	1.0
		trichlorofluoromethane	ND	1.0
		1,1-dichloroethene (1,1-DCE)	ND	1.0
		methylene chloride	ND	1.0
		trans-1,2-dichloroethene (trans-1,2-DCE)	ND	1.0
		1,1-dichloroethane (1,1-DCA)	ND	1.0
		cis-1,2-dichloroethene (cis-1,2-DCE)	ND	1.0
		2,2-dichloropropane	ND	1.0
		chloroform (THM1)	ND	1.0
		bromochloromethane	ND	1.0
		1,1,1-trichloroethane (TCA)	ND	1.0
		1,2-dichloroethane (EDC)	ND	1.0
		1,1-dichloropropene	ND	1.0
		carbon tetrachloride	ND	1.0
		benzene	3.9	1.0
		trichloroethene (TCE)	ND	1.0
		1,2-dichloropropane (DCP)	ND	1.0
		dibromomethane	ND	1.0
		bromodichloromethane (THM2)	ND	1.0
		cis-1,3-dichloropropene	ND	1.0
		toluene	ND	1.0
		1,1,2-trichloroethane	ND	1.0
		1,3-dichloropropane	ND	1.0
		dibromochloromethane (THM3)	ND	1.0
		tetrachloroethene (PCE)	ND	1.0
		1,2-dibromoethane (EDB)	ND	1.0
		chlorobenzene	ND	1.0
		1,1,1,2-tetrachloroethane	ND	1.0
		ethyl benzene	4.8	1.0
		m,p-xylene	ND	1.0
		styrene	ND	1.0
		o-xylene	ND	1.0
		bromoform (THM4)	ND	1.0
		1,1,2,2-tetrachloroethane	ND	1.0



Lab #	Sample ID	Compound Name	Result (ug/L)	RDL (ug/L)
29880	MW-1	isopropyl benzene	39	1.0
		1,2,3-trichloropropane	ND	1.0
		bromobenzene	ND	1.0
		n-propyl benzene	110	1.0
		2-chlorotoluene	ND	1.0
		4-chlorotoluene	ND	1.0
		1,3,5-trimethylbenzene	ND	1.0
		tert-butylbenzene	2.8	1.0
		1,2,4-trimethylbenzene	ND	1.0
		sec-butylbenzene	15	1.0
		1,3-dichlorobenzene	ND	1.0
		1,4-dichlorobenzene	ND	1.0
		1,2-dichlorobenzene	ND	1.0
		p-isopropyltoluene	2.8	1.0
		n-butylbenzene	24	1.0
		1,2,4-trichlorobenzene	ND	1.0
		naphthalene	3.7	1.0
		hexachlorobutadiene	ND	1.0
		1,2,3-trichlorobenzene	ND	1.0

#### Oxygenated Gasoline Additives

tert-butyl alcohol (TBA)	ND	25
methyl tert-butyl ether (MTBE)	ND	1.0
di-isopropyl ether (DIPE)	ND	1.0
ethyl tert-butyl ether (ETBE)	ND	1.0
tert-amyl methyl ether (TAME)	ND	1.0

Surrogates	Result (ug/L)	% Recovery	Acceptance Range (%)
dibromofluoromethane (20)	19.9	99.5	70 – 130
toluene-d <sub>8</sub> (20)	20.3	102	70 – 130
4-bromofluorobenzene (20)	20.4	102	70 – 130

Date Sampled: 05/20/05  
Date Received: 05/20/05

Date Analyzed: 05/24/05  
Method: EPA 8260B

QC Batch #: 5542





Lab #	Sample ID	Compound Name	Result (ug/L)	RDL (ug/L)
29881	GW-29	dichlorodifluoromethane	ND	1.0
		chloromethane	ND	1.0
		vinyl chloride	ND	1.0
		chloroethane	ND	1.0
		bromomethane	ND	1.0
		trichlorofluoromethane	ND	1.0
		1,1-dichloroethene (1,1-DCE)	ND	1.0
		methylene chloride	ND	1.0
		trans-1,2-dichloroethene (trans-1,2-DCE)	ND	1.0
		1,1-dichloroethane (1,1-DCA)	ND	1.0
		cis-1,2-dichloroethene (cis-1,2-DCE)	ND	1.0
		2,2-dichloropropane	ND	1.0
		chloroform (THM1)	ND	1.0
		bromochloromethane	ND	1.0
		1,1,1-trichloroethane (TCA)	ND	1.0
		1,2-dichloroethane (EDC)	ND	1.0
		1,1-dichloropropene	ND	1.0
		carbon tetrachloride	ND	1.0
		benzene	ND	1.0
		trichloroethene (TCE)	ND	1.0
		1,2-dichloropropane (DCP)	ND	1.0
		dibromomethane	ND	1.0
		bromodichloromethane (THM2)	ND	1.0
		cis-1,3-dichloropropene	ND	1.0
		toluene	ND	1.0
		1,1,2-trichloroethane	ND	1.0
		1,3-dichloropropane	ND	1.0
		dibromochloromethane (THM3)	ND	1.0
		tetrachloroethene (PCE)	ND	1.0
		1,2-dibromoethane (EDB)	ND	1.0
		chlorobenzene	ND	1.0
		1,1,1,2-tetrachloroethane	ND	1.0
		ethyl benzene	ND	1.0
		m,p-xylene	ND	1.0
		styrene	ND	1.0
		o-xylene	ND	1.0
		bromoform (THM4)	ND	1.0
		1,1,2,2-tetrachloroethane	ND	1.0



Lab #	Sample ID	Compound Name	Result (ug/L)	RDL (ug/L)
29881	GW-29	isopropyl benzene	ND	1.0
		1,2,3-trichloropropane	ND	1.0
		bromobenzene	ND	1.0
		n-propyl benzene	ND	1.0
		2-chlorotoluene	ND	1.0
		4-chlorotoluene	ND	1.0
		1,3,5-trimethylbenzene	ND	1.0
		tert-butylbenzene	ND	1.0
		1,2,4-trimethylbenzene	ND	1.0
		sec-butylbenzene	ND	1.0
		1,3-dichlorobenzene	ND	1.0
		1,4-dichlorobenzene	ND	1.0
		1,2-dichlorobenzene	ND	1.0
		p-isopropyltoluene	ND	1.0
		n-butylbenzene	ND	1.0
		1,2,4-trichlorobenzene	ND	1.0
		naphthalene	ND	1.0
		hexachlorobutadiene	ND	1.0
		1,2,3-trichlorobenzene	ND	1.0

#### Oxygenated Gasoline Additives

tert-butyl alcohol (TBA)	ND	25
methyl tert-butyl ether (MTBE)	ND	1.0
di-isopropyl ether (DIPE)	ND	1.0
ethyl tert-butyl ether (ETBE)	ND	1.0
tert-amyl methyl ether (TAME)	ND	1.0

Surrogates	Result (ug/L)	% Recovery	Acceptance Range (%)
dibromofluoromethane (20)	20.5	103	70 – 130
toluene-d <sub>8</sub> (20)	20.0	100	70 – 130
4-bromofluorobenzene (20)	19.1	95.5	70 – 130

Date Sampled: 05/20/05  
Date Received: 05/20/05

Date Analyzed: 05/24/05  
Method: EPA 8260B

QC Batch #: 5542



## LABORATORY QUALITY ASSURANCE REPORT

QC Batch #: 5540

Lab Project #: 5052005

Sample ID	Compound	Result (ug/L)
MB	TPH/Gas	ND
MB	MTBE	ND
MB	Benzene	ND
MB	Toluene	ND
MB	Ethyl Benzene	ND
MB	Xylenes	ND

Sample #	Sample ID	Compound	Result (ug/L)	Spike Level	% Recv.
29833	CMS	TPH/Gas		NS	
	CMS	Benzene	8.82	10.0	88.2
	CMS	Toluene	9.28	10.0	92.8
	CMS	Ethyl Benzene	9.70	10.0	97.0
	CMS	Xylenes	29.6	30.0	98.6

Sample #	Sample ID	Compound	Result (ug/L)	Spike Level	% Recv.	RPD
29833	CMSD	TPH/Gas		NS		
	CMSD	Benzene	9.01	10.0	90.1	2.2
	CMSD	Toluene	9.40	10.0	94.0	1.3
	CMSD	Ethyl Benzene	9.80	10.0	98.0	1.1
	CMSD	Xylenes	29.4	30.0	98.1	0.54

MB = Method Blank; LCS = Laboratory Control Sample; CMS = Client Matrix Spike; CMSD = Client Matrix Spike Duplicate  
NS = Not Spiked; OR = Over Calibration Range; NR = No Recovery



QC Batch #: 5544

Lab Project #: 5052005

Sample ID	Compound	Result (ug/L)
MB	TPH/Diesel	ND

Sample ID	Compound	Result (ug/L)	Spike Level	% Recv.
LCS	TPH/Diesel	2,000	2,730	73.2

Sample ID	Compound	Result (ug/L)	Spike Level	% Recv.	RPD
LCSD	TPH/Diesel	2,070	2,730	75.8	3.4

MB = Method Blank; LCS = Laboratory Control Sample; CMS = Client Matrix Spike; CMSD = Client Matrix Spike Duplicate  
NS = Not Spiked; OR = Over Calibration Range; NR = No Recovery

QC Batch #: 5542

Lab Project #: 5052005

Sample ID	Compound Name	Result (ug/L)
MB	1,1-dichloroethene	ND
MB	benzene	ND
MB	trichloroethene	ND
MB	toluene	ND
MB	chlorobenzene	ND

Surrogates	Result (ug/L)	% Recovery	Acceptance Range (%)
dibromofluoromethane (20)	20.0	100	70 – 130
toluene-d <sub>8</sub> (20)	20.2	101	70 – 130
4-bromofluorobenzene (20)	19.3	96.5	70 – 130



Sample #	Sample ID	Compound Name	Result (ug/L)	Spike Level	% Recv.
29862	CMS	1,1-dichloroethene	18.1	25.0	72.4
	CMS	benzene	24.0	25.0	96.0
	CMS	trichloroethene	24.4	25.0	97.6
	CMS	toluene	25.5	25.0	102
	CMS	chlorobenzene	23.8	25.0	95.2

Surrogates	Result (ug/L)	% Recovery	Acceptance Range (%)
dibromofluoromethane (20)	22.3	112	70 – 130
toluene-d <sub>8</sub> (20)	22.3	112	70 – 130
4-bromofluorobenzene (20)	19.1	95.5	70 – 130

Sample #	Sample ID	Compound Name	Result (ug/L)	Spike Level	% Recv.	RPD
29862	CMSD	1,1-dichloroethene	17.5	25.0	70.0	3.4
	CMSD	benzene	23.9	25.0	95.6	0.42
	CMSD	trichloroethene	24.2	25.0	96.8	0.82
	CMSD	toluene	25.5	25.0	102	0.0
	CMSD	chlorobenzene	24.1	25.0	96.4	1.3

Surrogates	Result (ug/L)	% Recovery	Acceptance Range (%)
dibromofluoromethane (20)	22.1	111	70 – 130
toluene-d <sub>8</sub> (20)	22.2	111	70 – 130
4-bromofluorobenzene (20)	19.2	96.0	70 – 130

MB = Method Blank; LCS = Laboratory Control Sample; CMS = Client Matrix Spike; CMSD = Client Matrix Spike Duplicate  
NS = Not Spiked; OR = Over Calibration Range; NR = No Recovery





**Analytical Sciences**  
P.O. Box 750336, Petaluma, CA 94975-0336  
110 Liberty Street, Petaluma, CA 94952  
(707) 769-3128  
Fax (707) 769-8093

## CHAIN OF CUSTODY

LAB PROJECT NUMBER: 5052005  
WINZLER & KELLY PROJECT NAME: Former Mendocino Lumber  
WINZLER & KELLY PROJECT NUMBER: 0242505001.3200

GEOTRACKER EDF: Y X N  
GLOBAL ID: \_\_\_\_\_  
COOLER TEMPERATURE: Blue Ice °C  
COC: \_\_\_\_\_  
PAGE: 1 OF 1

TURNAROUND TIME (check one)  
MOBILE LAB \_\_\_\_\_  
SAME DAY \_\_\_\_\_ 24 HOURS \_\_\_\_\_  
48 HOURS \_\_\_\_\_ 72 HOURS \_\_\_\_\_  
5 DAYS \_\_\_\_\_ NORMAL X

**CLIENT INFORMATION**

COMPANY NAME: WINZLER & KELLY CONSULTING ENGINEERS  
ADDRESS: 495 TESCONI CIRCLE, SUITE 9  
SANTA ROSA, CA 95401-4696  
CONTACT: Results. Donny. Questions: Don  
PHONE#: (707) 523-1010 Also: Laura  
FAX #: (707) 527-8679 Kennedy

**ANALYSIS**

ITEM	CLIENT SAMPLE ID.	DATE SAMPLED	TIME	MATRIX	# CONT.	PRESV. YES/NO	TPH/GAS/PAH EPA 8015M/8260	TPH DIESEL / MOTOR OIL EPA 8015M	VOLATILE HYDROCARBONS EPA 8260B (FULL LIST)	BTEX & OXYGENATES + PA SCAVENGERS EPA 8260B	OXYGENATED FUEL ADDITIVES EPA 8260B	CHLORINATED SOLVENTS EPA 8010 / EPA 8260B	SEMI-VOLATILE HYDROCARBONS EPA 8270	TRPH / TOG SM 5520F / EPA 418.1M	PESTICIDES / PCB'S EPA 8081 / 8141 / 8082	CAM 17 METALS / 5 LUFT METALS	TOTAL LEAD	COMMENTS	LAB SAMPLE #
1	GW-26A	5/24/05	9:57	W	5	Y/N	X	X	X									please	24877
2	GW-35	10:07			5		X	X	X									use silica	24878
3	GW-22	10:22			5		X	X	X									get clean-up	24879
4	MW-1	10:24			5		X	X	X									for motor oil	24880
5	GW-29	11:03			5		X	X	X									please	24881
6																		provide	
7																		chromatograms	
8																			
9																			
10																			
11																			

**SIGNATURES**

RELINQUISHED BY: P. Xanthopoulos  
SIGNATURE: \_\_\_\_\_  
DATE: 5/20/05 TIME: 11:04

SAMPLED BY: Don Xanthopoulos  
SIGNATURE: \_\_\_\_\_  
DATE: 5/20/05 TIME: 11:04

RECEIVED BY LABORATORY: Stamps 11:04  
SIGNATURE: \_\_\_\_\_  
DATE: \_\_\_\_\_ TIME: \_\_\_\_\_

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## **Appendix E**

### **GeoTracker Upload Verification**

## Electronic Submittal Information

[Main Menu](#) | [View/Add Facilities](#) | [Upload EDD](#) | [Check EDD](#)

### UPLOADING A GEO\_WELL FILE

Processing is complete. No errors were found!  
Your file has been successfully submitted!

**Submittal Title:** Former Mead Clark Lumber, Well Measurement File,  
5/20/05

**Submittal Date/Time:** 8/12/2005 10:47:06 AM

**Confirmation  
Number:** 3914600968

[Back to Main Menu](#)

Logged in as WINZLER (AUTH\_RP)

[CONTACT SITE ADMINISTRATOR.](#)